

# Notice of Allowability

Application No.

09/752,670

Examiner

Eva Yi Zheng

Applicant(s)

KIM ET AL.

Art Unit

2634

## -- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to 7/6/04.
2. ☒ The allowed claim(s) is/are 1,3-5 and 7-9.
3. ☒ The drawings filed on 06 July 2004 are accepted by the Examiner.
4. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
  - a) ☐ All   b) ☐ Some\*   c) ☐ None   of the:
    1. ☐ Certified copies of the priority documents have been received.
    2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
    3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

\* Certified copies not received: \_\_\_\_\_.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.

**THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.**

5. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
  6. ☐ CORRECTED DRAWINGS ( as "replacement sheets") must be submitted.
    - (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review ( PTO-948) attached
      - 1) ☐ hereto or 2) ☐ to Paper No./Mail Date \_\_\_\_\_.
    - (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date \_\_\_\_\_.
- Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
7. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

### Attachment(s)

- |   |  |
|---|--|
| 1. <input type="checkbox"/> Notice of References Cited (PTO-892)  | 5. <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)            |
| 2. <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                | 6. <input type="checkbox"/> Interview Summary (PTO-413),<br>Paper No./Mail Date _____. |
| 3. <input type="checkbox"/> Information Disclosure Statements (PTO-1449 or PTO/SB/08),<br>Paper No./Mail Date _____ | 7. <input checked="" type="checkbox"/> Examiner's Amendment/Comment                    |
| 4. <input type="checkbox"/> Examiner's Comment Regarding Requirement for Deposit<br>of Biological Material          | 8. <input checked="" type="checkbox"/> Examiner's Statement of Reasons for Allowance   |
|   | 9. <input type="checkbox"/> Other _____.   |

## **DETAILED ACTION**

### **EXAMINER'S AMENDMENT**

1. An examiner's amendment to the record appears below. Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such an amendment, it **MUST** be submitted no later than the payment of the issue fee.

Authorization for this examiner's amendment was given in a telephone interview with Mr. Steven Laut on September 27, 2004.

The application has been amended as follows:

- a) Regarding claim 1,
  - 1) line 4-5, delete "the" before "transmission symbols decoded".
  - 2) line 10-11, delete "the" before "two data symbol intervals received".
  - 3) line 12, change "the" before "average signal strength" to -- an--.
  - 4) line 13, change "the" before "threshold value" to -- a--.
  - 5) line 14, delete "the" before "output of the data".
  - 6) line 18, add --of the plurality of channel estimators -- after "wherein each channel estimator".
  - 7) line 19, change "the" before "pilot symbol" to -- a --.  
Change "the" before "channel gain" to -- a--.
  - 8) line 20, change "the" before "weighted average" to -- a--.
  - 9) line 21, change "the" before "channel estimate" to -- a--.
  - 10) line 23, change "the" before "channel estimate" to -- a--.

Art Unit: 2634

- 11) line 25, change "the" before "average of channel estimates" to – an--.
- 12) line 27, change "the" before "average of channel estimates" to – an--.
- b) Regarding claim 4, change "the" before "instantaneous signal power" to -- an --.
- c) Regarding claim 5,
  - 1) line 5, delete "the" before "channel estimates".  
delete "the" before "slots".
  - 2) line 6, change "the" before "average signal estimate" to -- an--.
  - 3) line 11, change "the" before "threshold value" to – a--.  
Change "the" before "output" to – an--.
  - 4) line 15, change "the" before "pilot symbol" to –a--.
  - 5) line 16 and 19, change "the" before "channel estimate" to -- a--.
  - 6) line 17 and 18, change "the" before "slot" to –a--.
  - 7) line 20, change "the" before "average of channel estimates" to – an--.
  - 8) line 21, change "the" before "average channel estimates" to – an--.
- d) Regarding claim 9,
  - 1) line 6, delete "the" before "channel estimates".
  - 2) line 9, delete "the" before "transmission symbols".
  - 3) line 11, change "the" before "average signal" to – an--.
  - 4) line 12, change "the" before "threshold value" to -- a--.  
Delete "the" before "output of the decoded data".
  - 5) line 16, change "the" before "pilot symbol" to –a--.  
Delete "the" before "channel gain".

Change "the" before "weighted" to --a --

- 6) line 17, change "the" before "channel estimate" to -- a--.
- 7) line 18 and 19, change "the" before "slot" to -- a--.
- 8) line 20, change "the" before "channel estimate" to -- a--.
- 9) line 21, change "the" before "average of channel estimates" to -- an--.
- 10) line 22, change "the" before "average channel estimates" to -- an--.

***Allowable Subject Matter***

2. Claims 1, 3-5 and 7-9 allowed.
3. The following is an examiner's statement of reasons for allowance:

None of the prior art teaches or suggest an apparatus for detecting signals of space-time coding based on transmission diversity, wherein each channel estimator of the plurality of channel estimators includes:

a slot channel estimator for filtering a pilot symbol to estimate a channel gain, and obtaining a weighted average of the channel estimates of several slots in order to produce the channel estimate of the slot;

a linear interpolation circuit for subjecting the channel estimate from the slot channel estimator to linear interpolation to produce a channel estimate of each transmission symbol; and

a linear filtering circuit for obtaining an average of the channel estimates of the symbols extracted by the linear interpolation circuit for a given interval in order to produce an average channel estimate of a transmission symbol.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

***Conclusion***

4. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Eva Yi Zheng whose telephone number is (571) 272-3049. The examiner can normally be reached on 7:30-4:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Stephen Chin can be reached on (571) 272-3056. The fax phone number for the organization where this application or proceeding is assigned is 703-879-9306.

**Any response to this action should be mailed to:**

Commissioner of Patents and Trademarks  
Washington, D.C. 20231

**or faxed to:**

**(703) 872-9314 (for Technology Center 2600 only)**

Hand-delivered responses should be brought to Crystal Park II, 2121 Crystal Drive, Arlington, VA, Sixth Floor (Receptionist).

Art Unit: 2634

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Technology Center 2600 Customer Service Office whose telephone number is (703) 306-0377.

Eva Yi Zheng  
Examiner  
Art Unit 2634

September 28, 2004

A handwritten signature in cursive script, appearing to read "Shuwang Liu".

SHUWANG LIU  
PRIMARY EXAMINER